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**Denbury** 

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## **Montana CO2 Injection Certification**

For over forty years, Carbon Dioxide Enhanced Oil Recovery (CO2 EOR) has been a proven, safe and effective method to produce otherwise stranded oil reserves from depleting U.S. oilfields. The technique was first developed in the oilfields of West Texas, but is now being utilized in the U.S. Gulf Coast and Rocky Mountain regions and in limited projects around the world. The U.S. Department of Energy estimates over 80 billion barrels of technically recoverable oil could be produced nationwide with 2.8 to 6.6 billion barrels estimated from the Rocky Mountain region. In Montana, the Bell Creek and Cedar Creek Anticline fields alone contain an estimated 300-340 million barrels of total potential tertiary reserves that are only recoverable through CO2 EOR. As the potential grows to utilize CO2 for EOR, new sources of CO2 supply from anthropogenic or man made sources will be needed to redevelop America's aging oilfields.

In recent years, attention has been focused beyond the obvious national energy security benefits of domestic oil supplied from CO2 EOR to recognition of associated or incidental storage of otherwise vented CO2 as a result of CO2 EOR hydrocarbon production operations. Numerous studies, both governmental and academic, show the added benefit of utilizing otherwise vented CO2 in the oilfield as a proven technique that results in incidental or associated safe and permanent underground storage of CO2.

Recent federal court rulings affecting CO2 classification have complicated the ability of industrial suppliers of CO2 to access the oilfield for purposes of CO2 delivery. Fortunately, States are responding with common sense solutions to provide regulatory mechanisms that support CO2 EOR both for purposes of domestic oil production as well as certification of the quantity of CO2 incidentally stored during enhanced recovery operations.

This legislation, builds on these concepts and provides authority to the Montana Board of Oil and Gas to verify and certify CO2 injection volumes utilized for EOR if voluntarily requested by the operator. This simple accounting measure if adopted, supports both EOR and industrial CO2 utilization in a way that promotes future growth of EOR and provides a mechanism for industrial CO2 suppliers to comply with emerging CO2 management demands.

By adding this provision to existing state oil and gas regulatory authority, Montana also builds on the established protections for mineral property owners who benefit from future oil production from EOR. This adherence to established state conservation law is critical to successful future utilization of industrial sources of CO2.



## Montana CO<sub>2</sub> Injection Certification for Associated Permanent Underground Storage

Carbon Dioxide (CO<sub>2</sub>) is a valuable commodity. Preventing its waste, and encouraging its development and utilization for commercial purposes such as its use in enhanced oil recovery operations (EOR) benefits the citizens of Montana.

With regard to the atmospheric emissions of CO<sub>2</sub> from non-geologic sources, the U.S. Supreme Court ruled in 2007 that the federal Environmental Protection Agency (EPA) was authorized to regulate Greenhouse Gases (GHG), including CO<sub>2</sub>, as a pollutant under the Clean Air Act (CAA) if it found such emissions were "reasonably anticipated to endanger human health or welfare". The EPA made that "endangerment" finding in 2009, and despite legal challenges by many state governments, the reviewing court affirmed the EPA's findings in June of 2012.

Although Congress has yet to mandate Carbon Capture and Sequestration (CCS) of otherwise vented CO<sub>2</sub> from industrial sources, regulation of such emissions is evolving through EPA regulation under existing statutory authority. The EPA has now determined that CO<sub>2</sub> is a regulated New Source Review (NSR) pollutant under the CAA and subject to the requirement that major emitters apply "Best Available Control Technology" (BACT) standards to reduce these emissions. As a result of these federal regulatory changes, proposed industrial projects that will emit large amounts of CO<sub>2</sub> will likely receive Title V Prevention of Significant Deterioration (PSD) permits only if they apply BACT to controlling the CO<sub>2</sub> emissions.

Anticipating federal CO<sub>2</sub> emission regulation, several states, including Montana, have already passed their own statutes to provide for geologic storage of CO<sub>2</sub> in non-EOR operations. A few states, however, have gone one step further to recognize the long-term associated storage of captured CO<sub>2</sub> that occurs simultaneously during EOR operations. The proposed Montana legislation adopts this pre-emptive approach by filling this important regulatory void with a State procedure authorizing the MBOG to issue orders recognizing and certifying permanent underground storage of captured CO<sub>2</sub> *during* EOR operations.

This bill encourages the recognition of storage of CO<sub>2</sub> during EOR operations by authorizing the MBOG to provide a process for certifying the quantities stored during such operations. This approach accomplishes two public policy objectives: (1) encouraging the use of a valuable CO<sub>2</sub> resource to maximize oil or gas production which might otherwise be stranded and (2) limiting the atmospheric emissions of a significant greenhouse gas.

By adopting a voluntary MBOG "recognition and certification" procedure that provides a mechanism for recognizing associated storage of CO<sub>2</sub> during EOR operations, Montana retains control of its own energy project development in a way that supports future carbon-intensive energy projects. Establishing this certification method at the State level protects mineral property rights, validates the MBOG's expertise in evaluating the geological and technical properties of EOR operations, and supports the financial requirements that future projects need to succeed by providing a practical method for proof of regulatory compliance.